

# Defense Contract Property Management System Audit Primer

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### MODULE 3

#### Audit Practices

By the end of this module, you should be able to:

- Explain the 10-step audit practice.

By completing the lesson, you should be able to:

- List the 10 steps in the commercial audit process in order.
  - Describe the underlying concept of each step.
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**A TEN STEP STATISTICAL AUDIT PROCESS** How do we take the pulse of a contractor's property system - one that may be quite extensive and involve untold property items, valued in the millions of dollars? A management measurement tool is employed to do an analysis in a timely and efficient basis. We call this tool the statistical audit process. While this process can and is successfully used to evaluate many diverse Processes, we will tailor our discussion to its application in evaluating contractor property systems.

Why ten steps? In a review of the literature from a number of professional associations it was determined that these ten steps represented the "essence" of the audit practice. There are a number of professional associations that deal with auditing – but the two largest are the American Institute of Certified Public Accountants (AICPA) (<http://www.aicpa.org>) and the Institute of Internal Auditors (IIA) (<http://www.theiia.org>). Both of these organizations have a rich and robust body of literature that the working property professional should become aware of and potentially read as they grow and mature in their chosen profession. Please note that these audit practices are NOT Government practices – rather they are practices applied in the COMMERCIAL as well as the Government world!

While there could certainly be more steps in a variety of different applications and environments, these ten comprise the core actions around which a statistical audit approach for property management can be planned and implemented.

Here they are:

1. State objectives of the audit test
2. Define Attributes/Transactions
3. Define the Population/Sampling Unit
4. Specify Acceptance/Rejection rate
5. Determine Sample Size
6. Randomly Select Sample

7. Perform Audit Procedure
8. Analyze Defects/Deviations
9. Generalize from Sample to Population
10. Determine status of Process/Process Segment

I would like to take a minute and briefly walk you through these steps and provide some rudimentary explanation and explication of the process. We will provide more and greater depth and detail to these items as we go through the course.

### #1 Objectives of Audit Test

- Determine the Process or Process Segment subject to review

What are you testing? This is an important first question to answer in planning a statistical audit. Recall that from the Government viewpoint the Contractor's Government property system is viewed in terms of Processes and 37 process segment. A review of the DoD Manual for the Performance of Contract Property Administration, Historically, we, the contract property community, have long held to the belief that property management was process oriented – even though we called them “categories” under the old and obsolete Armed Services Procurement Regulation (ASPR) Supplement # 3 or “Processes” under the rescinded DoD 4161.2M. The FAR GP Clause of 52.245-1 legitimized that belief – making it a contractual requirement. Therefore the Property Administrator needs to be quite comfortable with the concept of a PROCESS orientation as well as a well defined knowledge of what occurs under that process.

So, the question remains – what are you testing?

The ACQUISITION of stuff?

The RECEIVING of stuff?

The RECORDS maintained on stuff?

The performance of PHYSICAL INVENTORIES?

The DISPOSAL of Property?

Etc.

Notice that each of these actions is actually a PROCESS for accomplishing an act or action. So we are testing how well the contractor manages a PROCESS for accomplishing some form of act or action in accordance with a prescribed standard – in our case the Federal Acquisition Regulations (FAR) Part 45.5.

### #2 Define Attributes/Transactions

- Determine what data items of this Process or Process Segment that you will be testing

Having selected the Process or Process segment, the next planning step is to define the data points such which may be attributes or transactions to sample (test).

These may include:

- Date of posting
- Timeliness of posting
- Quantity Acquired
- Quantity Received
- Quantity posted
- Location
- Record accuracy
- Etc.

Remember that this is the planning phase and the attributes and transactions need to be selected BEFORE the statistical review BEGINS. The contractor is required by the applicable Government Property clauses and other applicable FAR/DFARS clauses to maintain records of Government property. Therefore, the “bits of data” that we will be reviewing have ALREADY BEEN PRESCRIBED by the contract and should be available for review.

**A CRITICAL NOTE – please note also that contractors must now also comply with VOLUNTARY CONSENSUS STANDARDS (VCS) or INDUSTRY LEADING PRACTICES (ILP). These items may echo the data requirements of the GP Clause or they may ALSO have ADDITIONAL DATA KEEPING REQUIREMENTS. In other words – THERE MAY BE OTHER ADDITIONAL CRITERIA NOT REQUIRED BY THE GP CLAUSE, BUT THAT THE CONTRACTOR MUST HAVE IN ITS SYSTEM TO COMPLY WITH ANY VCS OR ILP THAT THEY HAVE CHOSEN TO USE!!! We will discuss this concept later in the class and in this text.**

Amidst all of these records, selecting the proper data item(s) to reveal property system performance is one of the keys to a successful audit engagement.

### **#3 Define Population/Sampling Unit**

The term “Population” is defined as, “An aggregation of documents, records, assets, or actions selected for review due to common characteristics.” The term “Sampling Item (unit)” is defined as, “A single document, record, article or action from the sample.” Having already determined the Process and Process segments for our audit tests and further refined the focus using criteria under each segment, the most critical planning phase begins with the definition of the population and sampling unit. This is essentially establishing the “bulls-eye” in the target. This “bulls-eye” target, the population and the sampling unit should capture two important elements:

**First** – the population and the sample unit must have homogeneity – in other words there must be shared common characteristics. You do not want to be testing items that are DISSIMILAR! You are looking to test items – populations that have items that are comprised of items that have the SAME characteristics. Let me provide an example of dissimilar items – and the potential for combining

them into one population erroneously. One of the processes called out in the GP Clause of FAR 52.245-1(f) is that of Utilization. Embedded under utilization are: Use, Consumption, Storage and Movement. If I were to ask you to combine all of these under one population how would you DEFINE that population? Are usage records the same as consumption records are the same as storage records are the same as movement records? The answer, quite clearly is NO! for the process of storage you may not even look at records – you might visit the specific SITE where property is STORED. While for Consumption you might be doing a very DETAILED analysis of records and blueprints and drawings and bills of material, and material requirements lists. HOMOGENEITY!!! Remember that word – we will discuss it in greater detail later.

**Second** – a time frame must be established. When dealing in terms of a property system audit, a common timeframe would be 1 year or back to the last system audit.

REMEMBER: THIS IS PROBABLY THE MOST **CRITICAL STEP** IN THE ENTIRE PROCESS.

#### #4 Specify Acceptance/Rejection Rate

u Determining the acceptance/rejection rate is the next step in the planning process.

In the past we used the old Property Manual, DoD 4161.2-M for this task. Since no Department of Defense guidance exists it would be wise and prudent to continue to use the guidance provided in this rescinded manual until such time as some form of replacement is published. “Wait,” you say! “I can’t use that manual – my agency rescinded it!” Well, lacking any other guidance would you consider it – after more than two decades of successful use – to be invalid? Lacking anything else – it is not a bad place for application of some standard STATISTICAL APPLICATIONS. The old manual provided sampling for a 90% confidence level, stating:

*“b. When using a sampling plan, the Government's risk shall not exceed 10% (a 90% confidence level) excepting slight variations due to changes in population sizes. Appendix B contains sampling plans for use in achieving this 90% confidence level. Using this sampling plan the Government will discover defects of 10% or more, if they exist, 90% of the time. There may be times where, due to the criticality of a process, dollar value or sensitivity of the property that a sampling plan with a higher confidence level may be used.”*

What this means is that Government’s risk shall not EXCEED 10% - hence the minimum 90% confidence level.

Note however, that other, higher confidence levels may be needed depending upon differing populations and differing criticality of risk. For example: If we were looking at the Contractor’s control of the government furnished material, platinum or plutonium. It would not be unreasonable to require a 100% confidence level for obvious reasons.

The Property Manual, DoD 4161.2-M, Appendix B provided a 90% confidence level, double sampling plan to facilitate sample measuring. Here is a copy of that table.

**APPENDIX B 1**  
**90% CONFIDENCE DOUBLE SAMPLING PLAN**  
**(90% confidence of rejecting lots having 10% or more defects)**

<b>Lot Range</b>	<b>Sample Size 1</b>	<b>Accept if Defects in Sample 1 Are</b>	<b>Reject if Defects in Sample 1 Are</b>	<b>Continue with Sample 2 if Defects in Sample 1 Are</b>	<b>Sample Size 2</b>	<b>Accept if sum of Defects in Samples 1 and 2 Equals or is Less Than</b>	<b>Reject if Sum of Defects in Samples 1 and 2 Equals or Exceeds</b>
1-18	All	0	1	-	-	-	-
19-50	18	0	1	-	-	-	-
51-90	21	0	2	1	21	1	2
91-150	25	0	3	1 or 2	25	2	3
151-400	32	0	4	1,2 or 3	32	3	4
401-10,000	34	0	4	1,2 or 3	34	3	4
10,001-35,000	40	0	5	1,2,3 or 4	40	4	5
35,001-100,000	46	0	6	1,2,3,4, or 5	46	5	6
100,000 +	52	0	7	1,2,3,4,5, or 6	52	6	7

### #5 Determine Sample Size

Once the confidence level is selected, the sample size, suitable to the size of the population (lot range) should be determined. The above table ALSO provides a sample size for you to use to obtain this 90% confidence rate.

The table is self explanatory and is easy to use.

But give it a try... you want a 90% confidence rate and you have a population of 6792. How many SAMPLE NUMBERS will you select? If you look at the table above – find the range of 401 to 10,000. Why? Because 6792 falls within that range. Look at the second column. How many Sample Items will you select? 34!

## #6 Randomly Select Sample

Selecting a random sample is seemingly a simple task, yet more complex than one might think. We will cover sampling in MUCH greater detail later in this course – this is just a “teaser” until we get to the meat of the matter!!

So, how DO we select or draw the sample in an unbiased way? Bias creeps into choice selections everyday. Yet bias, or lack of randomness, can destroy the very basis of the measurement being taken. Recall that we are selecting a few from the vast many. Then we are permitting the attributes of the few to represent the many. Improperly chosen, wrong conclusions can be drawn on the sample and extrapolated to the population/lot.

How can we achieve a true representative sample?

Well, here are four approaches to sample selection:

- Random Selection
- Stratified Random Sampling
- Systematic Sampling or
- Use Random number tables found in virtually every statistics book out there!!!

Now, we really haven't taught you how to do ANY of these – rather we are wetting your appetite for the actual PROCESS of performing this task. More later on this topic!

## #7 Perform Audit Procedure

The culmination of all the planning comes together under this step. The population was determined, the sample selected to evaluate the applicable criteria. These criteria (ESTABLISHED BY BOTH THE FAR GP CLAUSE REQUIREMENTS and the VCS AND/OR ILP REQUIREMENTS) are the standards against which attributes and transactions are tested and evaluated.

The results of these tests are the WRITTEN AND DOCUMENTED work papers that capture the raw data of the evaluation. These work papers help form the basis of the documented audit evidence upon which conclusions will be drawn regarding the contractor's Property system – they are the AUDIT EVIDENCE of your work!

## #8 Analyze Defects

The eighth step is to analyze the defects found as a result of the statistical analysis. Care must be exercised to ensure validity of your findings. For example we have to carefully distinguish between:

- System defects versus a NON-Systemic deficiency

Isolated defects do not necessarily equal a system deficiency. Isolated system defects may not point to a systemic problem. Therefore good evaluation and good judgment need to be applied to what the data is saying

- Materiality

Are the noted defects important or otherwise significant? Not all findings carry system impact and judgment must be judiciously applied to determining their true significance

- Major versus Minor deficiencies

Even if there is a system deficiency that the evaluated data discloses, how significant is it?

- Qualitative versus Quantitative

A finding may be quantitatively significant (“Hey look, they were off by ten, or twenty items) and yet be statistically insignificant when considered in light of the QUALITATIVE IMPACT and the overall number of findings (“Yea, but the value of the items was only fifty cents total”).

Therefore SOUND evaluation and GOOD judgment must be applied

### **#9 Generalize from Sample to Population**

Having analyzed the defects from several perspectives, step nine requires that an inference be made between the statistical sample and the overall population.

If “x” was found in the statistical Sample, what inference, or generalization can correctly be drawn on the overall population?

### **#10 Determine the Status of Process/Process Segment and SYSTEM**

Of course the whole purpose of this statistical evaluation adventure is to determine the acceptability of the Process or Process segment and in turn, the acceptability of the Contractor’s property system. Additionally, the need for corrective action must be assessed and requested.

Is the Government Property system satisfactory or unsatisfactory? You are to evaluate the end result in accordance with your AGENCY’S Guidance and direction. Different agencies have determined different words to indicate the status of a system – though the terms Satisfactory and Unsatisfactory are the two most frequently used terms for the end result of a Property Management Systems Audit.

Is corrective action needed? Corrective action could include correction of system defects and/or correction of disclosed items with no systemic impact

This section provided just a quick overview of the Ten Step Process in regard to performing a Contract Property Control System Analysis. Each of the steps will be discussed in greater depth and detail in the coming chapters.